

REMARKS

Claim 1 is pending in the present application. In the Office Action dated November 18, 2004 the Examiner rejected claim 1 under 35 U.S.C. 102(b) as being anticipated by Breivogel et al. (U.S. Patent No. 5,554,064). Claim 1 was rejected under 35 U.S.C. 102(e) as being anticipated by Nagahara et al. (U.S. Patent No. 5,816,900). Claim 1 has been cancelled and new claims 62 through 80 have been added.

The embodiments disclosed in the present application will now be discussed in comparison to the prior art. The discussion of the disclosed embodiments and the discussion of the differences between the disclosed embodiments and the prior art subject matter do not define the scope or interpretation of any of the claims. Instead, such discussed differences are offered merely to help the Examiner to appreciate important claim distinctions as they are discussed.

The disclosed embodiments are directed to planarizing machines for planarizing microelectronic substrates. The machines for planarizing the microelectronic substrates generally include a table, a pad support assembly that may be either positioned on or positioned within the table, and a planarizing medium coupled to the pad support assembly. The pad support assembly may include a fluid container that can be removably attached to the table, however, in alternative embodiments, the fluid container may be formed as a depression in the table. The fluid container may also be comprised of a bladder that is attached to the table. The membrane generally has a first surface that engages a portion of the fluid container to define a fluid chamber or cavity, and a opposing second surface to which a planarizing medium may be attached. The planarizing surface generally has a planarizing surface facing away from the membrane, and an under surface that is coupled to the second surface of the membrane. The planarizing member may be attached directly to the membrane by bonding the second surface of the membrane to the under surface, or alternatively, an under pad may be positioned between the second surface of the membrane and the under surface of the planarizing medium. The fluid chamber may be filled with a support fluid to support the membrane over the fluid chamber. The support fluid may be water, air, glycerine, or other suitable fluids in order to support the membrane in a manner that permits both the membrane and the planarizing medium to flex

inwardly towards the fluid chamber when a substrate carrier presses a microelectronic substrate against the planarizing surface of the planarizing medium.

The Examiner has cited the Breivogel reference. The Breivogel reference discloses a polishing apparatus having a pad assembly 600 that consists of a plurality of flat, disc-shaped members that are vertically stacked, with a polishing pad being positioned as the uppermost member in the stacked members, as shown in Figure 6a. The plurality of disc-shaped members each includes one or more holes that project through the members to permit a polishing slurry to pass from a supply conduit (as best seen in Figure 6b) positioned below the stacked members that permits slurry to pass through the holes in each member and emerge onto the polishing surface at the top of the stacked members. Referring also now to Figure 6b, a cross sectional view of the stacked members is shown positioned on a table 620. A slurry feed is shown that is attached to the stacked members to provide a polishing slurry to the uppermost surface of the stacked members, through the central hole in the diaphragm 610.

The Examiner has also cited the Nagahara reference. The Examiner asserts that the Nagahara reference discloses a planarizing machine for processing microelectronic substrate assemblies having a table 28, a fluid container on the table, and an elastic membrane 22 over the fluid container.

However, neither the Breivogel reference nor the Nagahara reference disclose or fairly suggest a bladder having a bottom section and a sidewall section of thicknesses greater than the thickness of an elastic membrane that forms the top portion of the bladder.

Turning now to the claims, patentable differences between the applied art and the specific claim language will be pointed out. Claim 62 recites, in part, “a fluid container removably attached to the table, the fluid container is a bladder having a bottom section attached to the table, a sidewall projecting from the bottom section, and an elastic membrane, the elastic membrane being a top portion of the bladder integral with the sidewall, *the bottom section and the sidewall having thicknesses greater than a thickness of the elastic membrane to define an at least semi-rigid support for the elastic membrane*; the bottom section, the sidewall, and the elastic membrane defining an enclosed fluid chamber in the bladder.” (Emphasis Added). Neither the Breivogel nor Nagahara reference discloses or fairly suggests a bladder having a

bottom section, a sidewall, and an elastic membrane of the geometric configuration required by the limitations of claim 62.

Claim 69 recites, in part, “a fluid container removably attached to the table, the fluid container comprising a bladder including a bottom section having a first thickness attached to the table and a sidewall having a second thickness projecting from the bottom section, and an elastic membrane, *the elastic membrane having a thickness less than the first thickness and the second thickness*; the bottom section and the sidewall defining an at least semi-rigid support for the membrane; the elastic membrane being attached to the sidewall to define a fluid chamber in the bladder in a space between the bottom section and the elastic membrane.” (Emphasis Added). Neither the Breivogel nor Nagahara reference discloses or fairly suggests a bladder having a bottom section, a sidewall, and an elastic membrane of the geometric configuration required by the limitations of claim 69.

Claim 75 recites, in part, “a pad support assembly having *a bottom section of a first thickness, the bottom section configured to be attached to a table of the planarizing machine, a sidewall having a second thickness projecting from the bottom section, an elastic membrane having a thickness less than the first thickness and the second thickness*; the bottom section and the sidewall defining an at least semi-rigid support for the membrane; the elastic membrane being coupled to the sidewall to define an enclosed fluid chamber, the bottom section, the sidewall and the elastic membrane being an integral component defining a bladder.” (Emphasis Added). Neither the Breivogel nor Nagahara reference discloses or fairly suggests a bladder having a bottom section, a sidewall, and an elastic membrane of the geometric configuration required by the limitations of claim 75.

Claims depending from claims 62, 69, and 75 are also allowable due to depending from an allowable base claim and further in view of the additional limitations recited in the dependent claims.

All of the claims remaining in the application are now clearly allowable. Favorable consideration and a timely Notice of Allowance are earnestly solicited.

Respectfully submitted,

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Postcard

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